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10/810,158

03/26/2004

Michael F. Novits

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02/18/2005

EXAMINER

MOORE, MARGARET G

ARKEMA INC.

PATENT DEPARTMENT - 26TH FLOOR

2000 MARKET STREET

PHILADELPHIA, PA 19103-3222

ART UNIT

PAPER NUMBER

1712

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/810,158

Applicant(s)

NOVITS ET AL.

Examiner

Margaret G. Moore

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1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 3 to 5, 13 to 16, 18 to 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3 to 5, 13 to 16, 18 to 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. Claims 1, 3 to 5, 13 to 16 and 18 to 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is inappropriate to refer to R as trivalent since "n" is limited to one, making it a divalent group. This occurs twice in claim 1.

It is confusing to define R as a "cyclic aliphatic group having from about 2 to 16 carbon atoms, cyclic aliphatic groups having from 5 to about 20 carbon atoms..." because 1) there is no cyclic aliphatic groups having 2 carbon atoms and 2) these definitions overlap and render the breadth of R confusing. The Examiner notes that page 6 of applicants' specification teaches acyclic aliphatic groups having from about 2 to 16 carbon atoms. Thus it appears that "cyclic" in the first instance in claim 1 should be "acyclic".

In claim 15, while not indefinite per se, it is somewhat confusing and incorrect to state "compounding said polymer". Reference to "said polymer" is to a thermoset polymer when actually compounding occurs with the polymer prior to being thermoset. It would be appropriate to replace "said polymer" with "a thermosetting polymer".

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Berta.

Table 1 combines a bismaleimide, a sulfur donating compound and an organic

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peroxide, each of these meeting the required components (a), (b) and (c) as taught in claim 1. This anticipates the instant claims. Note that this composition does not exclude the presence of additional components in the composition.

5. Claims 1, 3, 4, 13, 14, 16 and 18 to 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Berta.

Berta teaches a partially crosslinked thermoplastic elastomer that contains each of the claimed components a), b) and c). See Example 1 and also note the bottom of column 2 through the top of column 3, which teaches peroxide curing systems, and column 4, lines 40 to 52, which teach bismaleimide and sulfur donors as coagents for the curing system.

Applicants have amended claim 1 to include the phrase "consisting essentially of" and to indicate that the composition containing a), b) and c) is useful for providing thermoset polymers.

The phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. In the instant application, the basic and novel characteristics appear to be the ability of the components to crosslink and be useful in providing low compression set, surface tack free thermoset polymers. Since the components a), b) and c) do in fact crosslink in the presence of the addition material, it does not appear that this language excludes the additional components found in Berta. As noted in the MPEP, section 2111.03, if an applicant contends that additional materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional components would materially change the characteristics of applicant's invention. Note that "useful for providing..." is a future intended use clause that does not appear to lend patentability to the instant claims. In this manner instant claim 1 is anticipated by Berta.

On the other hand, note the teachings of column 4, lines 40 to 52. This indicates that the "curing system", i.e. the organic peroxide taught on column 3, lines 14 - 24, may further contain the bismaleimide coagent and sulfur donor compounds. The Examiner

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acknowledges the teachings on column 4, lines 53 to 56, that the coagent is generally added along with the polybutadiene and the sulfur donor is generally added with the peroxide. However the skilled artisan would have found a composition capable of crosslinking by curing containing the three components claimed to have been obvious since it is the curing system per se (i.e. the peroxide) which "further contains" these additional components. In this manner, the instant claim 1 is rendered obvious.

In claims 3, 14 and 16, the curable polymer is met by the thermoplastic polymers taught by Berta. The Examiner notes that this claim does not require a thermosetting polymer.

The top of column 6 teaches placing the polymer mixture into a mold followed by curing, meeting claim 4.

The peroxide in Table 1 meets claims 13 and 19.

For claims 18 and 20, note column 4, lines 40 to 45, which teaches a limited number (8) of sulfur donors, two of which meet the requirements of claim 18. This paragraph teaches using the sulfur donors in combination with the bismaleimide. In view of the limited number of sulfur compounds from which one must choose, Berta anticipate a composition containing tetramethylthiuram monosulfide and amyphenyl disulfide and as such anticipate the instant claims. Patentee provides sufficient specificity to anticipate the instant claims.

6. Claims 1, 3 to 5, 13 to 16 and 18 to 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al.

Aoshima et al. teach methods for crosslinking rubber (i.e. preparing a thermoset polymer) by crosslinking in the presence of various additives and resulting in no surface tackiness. Particular attention is drawn to Example 14 on column 8. This shows a composition containing, as a curing system, dipentamethylene thiuram tetrasulfide (meeting b) and the requirement of claim 18), dicumyl peroxide (meeting c) and the requirement of claims 13, 19 and 20) and ethylene glycol dimethacrylate. This latter compound is used in this compositions as a crosslinking coagent. See column 4, lines

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30 to 37, which teaches that this compound can be used in the alternative with phenylene bismaleimide (meeting c)).

It is prima facie obvious to substitute equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable circumstances. The express suggestion to substitute one equivalent for another need not be present to render the substitution obvious.

Thus one having ordinary skill in the art would have been motivated by the teachings in Aoshima et al. that phenylene bismaleimide can be used in the alternative with ethylene glycol dimethacrylate as a crosslinking coagent for improving crosslinking efficiency, to use the bismaleimide compound in place of the dimethacrylate compound used in Example 14, thereby rendering obvious the instant claim.

For claims 3 and 15, note the various crosslinking rubbers taught on column 2, lines 54 to 69. Column 4, lines 55 to 60, teaches molding, meeting claim 4.

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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8. Claims 1, 3 to 5, 13 to 16 and 18 to 20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 12 and 21 to 27 of copending Application No. 09/869,251. Although the conflicting claims are not identical, they are not patentably distinct from each other because each of the required components a) through c) found in instant claim 1 are required by claims 12, 21, 26 and 27 of '251. The presence of any additional components in the claims in '251 does not appear to be excluded by the "consisting essentially of" language since the basic and novel characteristics of each invention are the same. The fact that the claims in '251 are disclosed as being useful for providing thermoset polymers renders obvious the addition of a polymer, meeting claims 3 and 14 to 16. Instant claims 13, 19 and 20 are met by claim 22 in '251 while instant claim 18 is met by claims 21 and 23 to 25.


This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret G. Moore whose telephone number is 571-272-1090. The examiner can normally be reached on Monday to Wednesday and Friday, 10am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MARGARET G. MOORE  
PRIMARY PATENT EXAMINER  
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